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ABSTRACT

1 Vacuum pneumatic conveying apparatus and method are described to
2 provide for a simple, economical, convenient (and preferably automatic) system
3 for conveying ice on an as-required basis from a source such as an ice maker
4 to one or more receptors at locations remote from that source. The system can
5 be configured such that dispensing locations can be added or eliminated from
6 the system or temporarily taken "off line" from the system without the need to
7 change the basic system configuration or the central ice providing apparatus.
8 The apparatus in various embodiments includes an ice source, a conveying
9 conduit from the source to the receptor, a vacuum pump for moving the ice
10 through the conduit by vacuum, and the receptor to collect the conveyed ice.
11 The receptor may be an ice/beverage dispenser, an accumulator for retention
12 and discharge to further devices, an intermediate storage dispenser, or an air
13 lock device from where the ice can be projected over significant distances. Ice
14 and vacuum may simultaneously be routed into different branched routes,
15 utilizing a unique diverter/air shifter with the capability of providing routing to up
16 to four different routes. Appropriate sensors and controllers, which may be
17 microprocessor-based, may be used to automate the system. The entire system
18 is easily cleanable. The system is advantageously used by restaurants,
19 groceries, hotels and motels, hospitals, laboratories, and many other
20 establishments where the providing of ice at various locations is desirable or
21 required.
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